

Pollution Prevention at Fort Carson
By Accident or Design?

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Fort Carson is a major U.S. Army Forces Command installation located south of Colorado Springs, Colorado. The Installation is one of the largest in the Army, covering some 367,000 acres. It is the home of more than 15,000 active-duty military personnel and has more than 4,000 tactical vehicles. The Installation garrison consists primarily of the 3rd Armored Cavalry Regiment, the 3rd Brigade Combat Team of the 4th Infantry Division, the 43rd Area Support Group, and the 10th Special Forces Group (Airborne). In addition, tenant activities such as the Colorado National Guard, the Colorado Air National Guard, the Army Reserve, the Naval Reserves, Marine Reserves, Seabees and the Air Force Reserves train on Fort Carson.

The primary mission of Fort Carson is to train, mobilize, deploy and sustain combat-ready forces. Operational and training facilities and equipment supporting the mission include 24 motor pools, 67 training ranges, 56 training areas, Butts Army Airfield, 12 drop zones and the 235,896-acre Pinon Canyon Maneuver Site. The major industrial processes on Fort Carson are directly related to vehicle maintenance activities - painting, routine maintenance of wheeled and tracked vehicles, engine rebuilding and aircraft maintenance. These processes consume large amounts of raw materials and tracking the attendant input and output streams is a formidable task.

Fort Carson recently won the Department of Defense (DOD) 1998 Pollution Prevention Award for a Non-Industrial Installation. The Installation has garnered numerous awards over the years for various environmental programs, but this was the first time the Fort Carson was recognized for its all-encompassing P2 program. The basic elements that went into the award submission package were parts of pre-existing environmental programs. Fort Carson already had incorporated elements of P2 into its existing program areas. What was needed to consolidate the program was to bring together the personnel from different programs in a team environment to assemble all the dispersed P2 initiatives.

Fort Carson's pollution prevention efforts are managed by the Directorate of Environmental Compliance and Management (DECAM). DECAM has taken a new approach to managing the Installation's Pollution Prevention (P2) Program. In September 1997, DECAM established a multidisciplinary P2 Team -- DECAM's first cross-functional team. Team members represent such diverse areas as environmental compliance, natural resources, the Hazardous Materials Control Center (HMCC or Hazmat Pharmacy), Recycling, Energy Conservation, Water and Waste Water, Supply and Procurement, Wildlife and other organizational areas. The reason for establishing this team was economics -- lack of available funding for the P2 manager position.

This problem has affected federal facilities since the effective date of Executive Order #12856 - November 3, 1993. The EO Compliance was an unfunded mandate -- the compliance costs had to come out of the existing total environmental pie. The required compliance is made more difficult due to the fact that there are no monetary penalty provisions associated with noncompliance with the EO.

To accomplish more with fewer resources, changes must be made to traditional methods of doing business. A team approach draws on the accumulated knowledge, skills and experience of multiple disciplines. Ultimately Fort Carson's DECAM expects good ideas and improved decisions, initiatives and solutions from the P2 Team. The mission of P2 is to reduce or eliminate pollution of land, air and water. Taking a proactive approach by advocating P2 initiatives is considered more appropriate for environmental compliance than being perpetually in a reactive mode. It is also much cheaper.

Fort Carson's pollution prevention mission is to "Perform all P2 management actions to proactively reduce or eliminate pollution of land, air and water for Fort Carson and the Pinon Canyon Maneuver Site for both long and short-term goals." In the last two years, the P2 program has provided continuous improvement in the basic program areas: hazardous waste and hazardous materials reduction, energy, recycling, staff assistance/inspections/training, water conservation, affirmative procurement and sustaining military training lands.

One of the most important initiatives in reducing hazardous waste and the amount of hazardous materials stored on the installation has been the Hazardous Material Control Center (HMCC) or Hazmat Pharmacy. The pharmacy management concept establishes a central location that controls purchasing, receiving, issue, storage, reuse and turn in/disposal of hazardous waste. Fort Carson is one of the beta test sites for the Army's Hazardous Substance Management System software.

The installation currently has about 60 percent of assigned units operating under the control of the HMCC for all hazardous products. As a direct result of the pharmacy, hazardous materials stored on post have been reduced from 1,716,850 pounds in 1994 to 765,600 pounds in 1996 -- a reduction of 55 percent. In its first year of operation (representing 20 percent of the installation hazardous materials), the pharmacy recovered and distributed for use more than \$360,000 of excess products. It also extended the shelf life of 7,145 items at a cost saving of \$260,000 and had a disposal cost avoidance of \$560,000.

Fort Carson recycling efforts have been a long-standing, visible part of the P2 program. The post has its own recycling center that processes newspaper, cardboard, white paper, computer paper, plastics, bi-metal cans, aluminum cans and tab cards. A number of other items, including brass ammunition casings, steel and precious metals are recycled through the Defense Reutilization and Marketing Office. The installation recycles materials from base family housing, military units, civilian offices, the base commissary, the Air Force Space Command and the Federal Bureau of Prisons. One innovative program in Fort Carson recycling is the troop incentive program. Military units can collect recyclables and receive a portion of the recycling proceeds for their unit. A total of 3,639,400 pounds of material were recycled in FY96. As a direct result of the recycling program, revenue of more than \$300,000 was generated by sale of recyclable

washing was placed in the facility two and a half years ago and not a drop of water has been added to the system. The 15 inches of annual rainfall the post receives is adequate to make up for evaporation losses. Recently, grass carp were introduced into the basins of the CVWF to help control aquatic weeds which grow there. The CVWF provides water savings of 200 million gallons per year - a \$200,000 saving. In its nine years of operation, the CVWF has saved over 1.8 billion gallons of water.

2) The Fort Carson golf course uses approximately 90 million gallons a year of treated waste water for irrigation of 180 acres of greens, fairways and improved rough. This waste water irrigation has been ongoing since 1971. The waste water is pumped from the Fort Carson sewage treatment plant four miles to an aerated retention pond at the golf course. From there, it is applied to the irrigated acreage by a sprinkler system. This irrigation has saved more than 2 billion gallons of water since its inception.

3) Several management projects such as leak detection surveys, an Installation Design Guide (which requires use of low flow showerheads, toilets and urinals) and a feasibility study for expanding waste water irrigation have been used as planning tools for the water conservation program. Fort Carson is currently negotiating with its water supplier, the City of Colorado Springs, to provide nonpotable water for turf irrigation. Using nonpotable water will save the installation up to 50 percent in water costs for the irrigated areas. Turf irrigation in family housing has an automated control system using moisture probes to control application rates. Over 500 drought-tolerant trees were planted on Fort Carson to lower landscape demand for irrigation water.

These initiatives have produced measurable results. Water conservation methods save Fort Carson more than \$330,000 per year in avoided water costs. The annual water usage savings for the golf course irrigation and the Central Vehicle Wash Facility alone are approximately 250 million gallons per year. In the past three years the innovative techniques and management practices at Fort Carson have produced a 12 percent reduction in water usage.

Fort Carson's positive procurement program helps meet pollution prevention goals. This program uses the GSA "Chasing the Arrow" program to identify energy-efficient office equipment (printers, fax machines, computers and monitors) and supplies with recycle content (copy paper, paper towels and toilet paper). Recycling of toner cartridges for fax and printers is mandatory. Energy efficient task lighting (compact fluorescents) is available through the DLA Green Lights Catalog.

Sustainability of military training lands is essential to Fort Carson's mission. Environmental stewardship is a primary goal of DECAM's management -- we must have a sustainable level of environmental quality in order to continue our military mission. To this end, the installation has done the following:

- * Constructed more than 600 erosion control dams to control sediment runoff.
- * Banksloped unstable areas to control erosion.
- * Constructed 8,500 linear feet of terrace to control sediment runoff.
- * Built 24 hardened crossings for armored vehicles in erosion-prone areas.
- * Conducted extensive revegetation programs (more than 2,000 acres) for areas with maneuver damage.
- * Performed dust abatement on approximately 100 miles of tank trails and training roads.
- * Formed its own wildland fire team to control wildfires on the installation.

- * Conducted basic research on sediment yield and erosion rates.
- * Conducted wetland surveys and monitoring.

One initiative generated directly by the Pollution Prevention Team is a project using scrap vehicle track as rip rap for erosion control. This project reused almost two million pounds of scrap track headed for the landfill to armor a watercourse on the Installation to prevent erosion of a landfill cap.

Fort Carson is proud of its accomplishments in pollution prevention in the past two years. Not only is P2 cost-effective, but many of the projects implemented have made Fort Carson a safer place to work. This will help to preserve and enhance the natural beauty of the Pikes Peak region for years to come. The P2 program has demonstrated its effectiveness in reducing occupational and environmental hazards, improving operational efficiency and providing measurable cost avoidance benefits that support Fort Carson's military mission while improving environmental quality on the installation.

We understand our pollution prevention commitment to be a shared responsibility. Through strong leadership and a teamwork approach we have undertaken to increase awareness pollution prevention. Strong alliances and partnerships allow each member of the Fort Carson community to share in our commitment and success.